

Revised 3/18/84  
Letter from Chairman of Task Force

SUBJECT: Final Report of the Task Force on  
Military Applications of New-Generation Computing Technologies.

Enclosed is the Final Report of the Defense Science Board Task Force on Military Applications of New-Generation Computing Technologies. The Report addresses all of the items recommended by Dr. DeLauer in his letter of January 20, 1983, establishing the Task Force. As you are aware, the full Defense Science Board was briefed on the study and was presented the Findings and Recommendations on March xx, 1984.

These new technologies embrace hardware developments: very large scale integration, materials like gallium arsenide, and ingenious new architectures for computers taking advantage of parallelism on an unprecedented scale. It is widely recognized that existing machine structures are approaching limits imposed by the laws of physics, and that the continued growth of computing capability at ever lower cost will not be possible without such innovations. We accept that perspective, but did not ourselves undertake a review of the technology base, which did not lie within our charter. We did focus on the software opportunities, mainly those labelled under the heading of 'machine intelligence' and the military applications these would enable.

The Services and DoD Agencies have some pioneering research in these technologies. It is impressive in vision but limited in scope. The Task Force hopes that this study may help give these programs the stimulus and visibility needed to support that research and effect its successful transition into operational testing, demonstration and use. The Task Force is also recommending some applications which cut across all the Services and which are on a scale that no one Service is likely to address.

The Defense Advanced Research Projects Agency (DARPA) program on 'Strategic Computing' is the principal vehicle for building the groundwork of these applications. Our report discusses requirements for relating that program to military requirements, so as to ensure the most prompt and efficient utilization of these technological advances.

Our Task Force is most grateful to the many people in the Department, the Services, Industry, and Academia who extended themselves in preparing many fascinating presentations and in bearing with our numerous and uninhibited questions.

Joshua Lederberg

Chairman